

*NB* 2. (Twice Amended) An isolated polynucleotide, encoding a polypeptide having, for every contiguous series of at least 30 amino acids, at least 50% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.

*D* 7 (Twice Amended) An isolated retroviral polynucleotide comprising an env gene, wherein said env gene comprises a nucleic acid having a nucleotide sequence selected from the group consisting of SEQ ID NO: 9, its complementary sequence, and sequences having, for every series of 100 contiguous monomers, at least 50% identity with SEQ ID NO: 9 or said complementary sequence.

*DZ* 8. (Twice Amended) The isolated retroviral polynucleotide according to claim 7, wherein the env gene further comprises a portion of SEQ ID NO: 9, wherein said portion starts at nucleotide 1 of SEQ ID NO: 9 and ends at nucleotide 233 of SEQ ID NO: 6.

*D* 9. (Twice Amended) An isolated retroviral polynucleotide comprising an env gene, wherein said env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 50% identity with the peptide sequence SEQ ID NO: 10.

*NB* 13. (Twice Amended) The retroviral polynucleotide according to claim 3, *→ canceled* wherein said retroviral polynucleotide is associated with at least one autoimmune disease.

*D3* 14. (Twice Amended) An isolated fragment comprising a polynucleotide having a nucleotide sequence selected from the group consisting of:

(i) sequences SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 12, SEQ ID NO: 16, SEQ ID NO: 21, SEQ ID NO: 30 and SEQ ID NO: 31;

(ii) sequences complementary to sequences (i); and  
 (iii) sequences having, for every series of 100 contiguous monomers, at least 50% identity with sequences (i) or (ii).

*D* 15. (Twice Amended) The fragment according to Claim 14, consisting of a polynucleotide having a nucleotide sequence selected from the group consisting of:

(i) sequences SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 12, SEQ ID NO: 16, SEQ ID NO: 21, SEQ ID NO: 30 and SEQ ID NO: 31;  
(ii) sequences complementary to sequences (i); and  
(iii) sequences having, for every series of 100 contiguous monomers, at least 50% identity with sequences (i) or (ii).

*NR* 16. (Twice Amended) An isolated fragment comprising a polynucleotide having a nucleotide sequence encoding a polypeptide having, for every contiguous series of at least 30 amino acids, at least 50% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.

*NR* 17. (Twice Amended) The fragment according to claim 16, consisting of a polynucleotide having a nucleotide sequence encoding a polypeptide having, for every contiguous series of at least 30 amino acids, at least 50% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.

*NR* 25. (Twice Amended) A diagnostic, prophylactic or therapeutic composition, in particular for inhibiting the expression of at least one retrovirus associated with multiple sclerosis and/or rheumatoid arthritis, comprising a nucleotide fragment according to claim 14.

*Q4 NR* 26. (Twice Amended) A method for detecting a retrovirus associated with multiple sclerosis and/or rheumatoid arthritis, in a biological sample, characterized in that an RNA and/or a DNA assumed to belong to or obtained from said retrovirus, or their complementary RNA and/or DNA, is brought into contact with a composition comprising a nucleotide fragment according to claim 14.

Please add new claims 27-64 as follows:

-27 The polynucleotide of claim 1, wherein the nucleic acid has a nucleotide sequence having for every series of at least 100 contiguous monomers, at least 70% identity with the sequences (i) or (ii).--

-28 The polynucleotide of claim 1, wherein the nucleic acid has a nucleotide sequence having for every series of at least 100 contiguous monomers, at least 80% identity with the sequences (i) or (ii).--

-29 The polynucleotide of claim 1, wherein the nucleic acid has a nucleotide sequence having for every series of at least 100 contiguous monomers, at least 90% identity with the sequences (i) or (ii).--

-30 The polynucleotide of claim 1, wherein the nucleic acid has a nucleotide sequence having for every series of at least 100 contiguous monomers, at least 95% identity with the sequences (i) or (ii).--

*NR* --31. The polynucleotide of claim 2, wherein the polypeptide has, for every contiguous series of at least 30 amino acids, at least 70% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--  
*PS*

*NR* --32. The polynucleotide of claim 2, wherein the polypeptide has, for every contiguous series of at least 30 amino acids, at least 80% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

*NR* --33. The polynucleotide of claim 2, wherein the polypeptide has, for every contiguous series of at least 30 amino acids, at least 90% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

*NR* --34. The polynucleotide of claim 2, wherein the polypeptide has, for every contiguous series of at least 30 amino acids, at least 95% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

--35. The retroviral polynucleotide of claim 7, wherein the nucleic acid has a nucleotide sequence having, for every series of at least 100 contiguous monomers, at least 70% identity with the nucleotide sequences selected from the group consisting of SEQ ID NO: 9, and its complementary sequences.--

--36. The retroviral polynucleotide of claim 7, wherein the nucleic acid has a nucleotide sequence having, for every series of at least 100 contiguous monomers, at least 80% identity with the nucleotide sequences selected from the group consisting of SEQ ID NO: 9, and its complementary sequences.--

*P5* --37. The retroviral polynucleotide of claim 7, wherein the nucleic acid has a nucleotide sequence having, for every series of at least 100 contiguous monomers, at least 90% identity with the nucleotide sequences selected from the group consisting of SEQ ID NO: 9, and its complementary sequences.--

--38. The retroviral polynucleotide of claim 7, wherein the nucleic acid has a nucleotide sequence having, for every series of at least 100 contiguous monomers, at least 95% identity with the nucleotide sequences selected from the group consisting of SEQ ID NO: 9, and its complementary sequences.--

*NR* --39. The isolated retroviral polynucleotide of claim 9, wherein the env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 70% identity with the peptide sequence SEQ ID NO: 10.--

*NR* --40. The isolated retroviral polynucleotide of claim 9, wherein the env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 80% identity with the peptide sequence SEQ ID NO: 10.--

*NR* --41. The isolated retroviral polynucleotide of claim 9, wherein the env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 90% identity with the peptide sequence SEQ ID NO: 10.--

*NR* --42. The isolated retroviral polynucleotide of claim 9, wherein the env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 95% identity with the peptide sequence SEQ ID NO: 10.--

*NR* --43. The retroviral polynucleotide according to claim 13, wherein said autoimmune disease is multiple sclerosis or rheumatoid arthritis.--

(--44) The polynucleotide fragment according to claim 14, wherein said fragment has, for every series of 100 contiguous monomers, at least 70% identity with the nucleic acid sequences of (i) or (ii).--

(--45) The polynucleotide fragment according to claim 14, wherein said fragment has, for every series of 100 contiguous monomers, at least 80% identity with the nucleic acid sequences of (i) or (ii).--

(--46) The polynucleotide fragment according to claim 14, wherein said fragment has, for every series of 100 contiguous monomers, at least 90% identity with the nucleic acid sequences of (i) or (ii).--

(--47) The polynucleotide fragment according to claim 14, wherein said fragment has, for every series of 100 contiguous monomers, at least 95% identity with the nucleic acid sequences of (i) or (ii).--

(--48) The polynucleotide fragment according to claim 15, wherein said fragment has, for every contiguous series of 100 contiguous monomers, at least 70% identity with the nucleic acid sequences of (i) or (ii).--

(--49) The polynucleotide fragment according to claim 15, wherein said fragment has, for every contiguous series of 100 contiguous monomers, at least 80% identity with the nucleic acid sequences of (i) or (ii).--

-50 The polynucleotide fragment according to claim 15, wherein said fragment has, for every contiguous series of 100 contiguous monomers, at least 90% identity with the nucleic acid sequences of (i) or (ii).--

-51. The polynucleotide fragment according to claim 15, wherein said fragment has, for every contiguous series of 100 contiguous monomers, at least 95% identity with the nucleic acid sequences of (i) or (ii).--

NR --52. The polynucleotide fragment according to claim 16, wherein said fragment has, for every series of at least 30 amino acids, at least 70% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --53. The polynucleotide fragment according to claim 16, wherein said fragment has, for every series of at least 30 amino acids, at least 80% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

PS NR --54. The polynucleotide fragment according to claim 16, wherein said fragment has, for every series of at least 30 amino acids, at least 90% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --55. The polynucleotide fragment according to claim 16, wherein said fragment has, for every series of at least 30 amino acids, at least 95% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --56. The polynucleotide fragment according to claim 17, wherein said fragment has, for every series of at least 30 amino acids, at least 70% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --57. The polynucleotide fragment according to claim 17, wherein said fragment has, for every series of at least 30 amino acids, at least 80% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --58. The polynucleotide fragment according to claim 17, wherein said fragment has, for every series of at least 30 amino acids, at least 90% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --59. The polynucleotide fragment according to claim 17, wherein said fragment has, for every series of at least 30 amino acids, at least 95% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

(-60) The isolated polynucleotide according to claim 1, wherein said polynucleotide is DNA.--

(-61) The isolated polynucleotide according to claim 1, wherein said polynucleotide is RNA.--

UT=4 (-62) The isolated polynucleotide according to claim 1, wherein said polynucleotide is genomic DNA--

(-63) A recombinant vector comprising the polynucleotide defined in claim 1--

(-64) An expression vector comprising the polynucleotide defined in claim 1--